# Re: Proof that Randomness is trivial. Zero explained in complete detail.

***Source:*** http://sci.tech−archive.net/Archive/sci.math/2006−12/msg06684.html


- *From*: "T.H. Ray" <thray123@xxxxxxx>


- *Date*: Mon, 25 Dec 2006 13:22:00 EST


T.H. Ray wrote:

T.H. Ray wrote:

T.H. Ray wrote:

T.H.
Ray
wrote:

Even
sharks
have
to
have
something
to

chew> on,

before

they
can
chew.
Merely
throwing
out

opinions is

not

equivalent
to
feeding.

What,
for
example,
do
you
mean
by

"absolute

disorder?"

Tom

In
a
sequence
of
fair
coin
tosses,
each

succesive

outcome
is
disordered
with
respect
to
all
the
others.
Absolute

disorder

means
that
there
is

no
order
whatsoever
in
this
process.

Really?
What do
you call the
perfect

information

that you
possess
(two sided
coin, fair

weight,

fair

toss)? What
you should
have said is
that

the

outcome

of any
single toss
is
independent
of the

outcome of

the previous
toss. Where
does that
leave

your

definition of
"absolute
disorder?"

−− dead

in

the

water.

The coin
toss
algorithm is
ordered,
i.e.,

not

random.

Tom

In fact that is precisely my
position.

Exactly.

You

have nailed it.

So, this property of
"randomness" is quite

elusive.

Yet, we can define
it in such a way that it has
meaning, and the
presence of disorder is
bolstered by tons and tons of
probability and
statustic which seems to
validate it's presence.

This seems paradoxical. The
only way to

resolve

it is

to let the
property itself be trivial.
Existence is

problematic,

nonexistence is
also problematic, and the
compromise is

triviality.

The existence of
randomness is
indeterminate.

Your conclusion does not follow from your

premises.

Tom

Because we are dealing with existential issues,

it

would be expected
that some things might seem contradictory at

first

glance. Even the
very idea that existence could be indeterminate,

this

seems quite
utterly preposterous on the face of it.

Yet − we are talking about an existential

boundary

condition and you
would expect logic to do some wierd things.

There really is no way to tell if an object is
itself, or if it is a
trivial clone of itself. This cannot be

determined.

Mathematical indeterminacy is very interesting,

but

there really is'nt
much info on it except for what we know about
"randomness".

While it is true that one cannot differentiate

between

a perfect emulation of a computer program and the

original

−− to mathematics, it doesn't matter. Mathematics

is the

language in which the program is written, not the

thing

being described.

We know that when we describe random events by some
program, we are only describing a pseudorandom

sequence,

because the algorithm is smaller than the thing it
describes. The question of whether the thing that

we call

the universe is algorithmically compressible, is an

open

question.

You are confusing the language, mathematics, with

the

properties of the world that it seeks to describe.

The

language is, of course, far from random.

Tom

Well, thats great criticism. So, let me start by
saying that physics is
an abstract mathematical model of physical reality,
and yes it is
distinct from that reality, even though it is
embedded somehow in the
universe vis−a−vis the mind. Nevertheless, it is a
representation. What
I think we're doing here is providing a
representation which is much
closer to describing what's really happening, so much
so that reality
and math become difficult to distinguish, but
certainly they are
distinct.

Questions about randomness and determinism are very
old, and I think
that the property of randomness is itself inherently
paradoxical. This
is not to say that randomness is useless. Rather,
that the existence of
paradox implies something which has not been
understood because we have
a tendency to reject paradox as scientific junk.

Even Chaitin acknowledges that there is no way to
determine if a given
number is random or not. You simply cannot determine
if the number was
generated by a random process, or a deterministic
one. I dont think
that Chaitin realized the depth of what he said.

In saying this, he actually stated that there is

> indeterminacy with
> respect to the presence of this property of
> randomness. He did'nt say
> it that way, but this is precisely the content of
> that result.
> Unfortunately, mathematicians are trained to think in
> a logically
> deterministic way and so when you find indeterminacy
> it looks like a
> dead end and you move on to other things. I dont
> think that he realized
> that he actually held the solution, but he was
> missing just one thing −
> triviality.
>
> Existential triviality is not considered a very
> valuable thing
> mathematically, and so it's not surprising that he
> missed the
> connection. Mathematicians use existence is a
> somewhat contorted way.
>
> Anyway, to say that randomness is trivial, what that
> implies is that
> the presence of randomness cannot be determined. You
> can argue that it
> does exist, and also that it does not. I'm not
> suggesting that
> randomness is mathematical junk. Rather, that it has
> this amazing
> aspect of indeterminacy, and why.

Again, what does this have to do with mathematics? Really, I fail to see how you can get anywhere (at least, logically) without comprehending that the mathematical language is adapted to studying propositions of the form, A −−> B.

"The basic concept is this: Once you entomb mathematics in an artificial language a la Hilbert, once you set up a completely formal axiomatic system, then you can forget that it has any meaning and just look at it as a game played with marks on paper that enables you to deduce theorems from axioms. Of course, the reason one does mathematics is because it has meaning. But if you want to to be able to study mathematical methods, you have to crystalize out the meaning and just examine an artificial language with completely precise rules." ~ Gregory Chaitin, Metamath!, Pantheon 2005, p. 164.

If you have actually read Chaitin, I think you need to
read a bit more carefully. If he thought that your
context for "trivial" has any mathematical meaning at all,
he would merely have written off Omega as a nonsensical
result, an artifact of the computing art.

Tom
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